

Amendment to the Claims

1. (currently amended) A cold-rolled steel sheet having excellent strain age hardenability, wherein $BH \geq 80\text{MPa}$ and $\Delta TS \geq 40$ and comprising a composition, by mass %, comprising:

C: 0.15% or less;

Si: 1.0% or less;

Mn: 2.0% or less;

P: 0.1% or less;

S: 0.01% or less;

Al: 0.005 to 0.030%; and

N: 0.0050 to 0.0400%;

wherein N/Al is 0.30 or more, the amount of dissolved N is 0.0010% or more, and the balance is composed of Fe and inevitable impurities.

2. (original) A cold-rolled steel sheet having excellent strain age hardenability according to Claim 1, comprising a composition, by mass %, further comprising at least one of the following groups a to d:

Group a: at least one of Cu, Ni, Cr and Mo in a total of 1.0% or less;

Group b: at least one of Nb, Ti and V in a total of 0.1% or less;

Group c: 0.0030% or less of B; and

Group d: one or both of Ca and REM in a total of 0.0010 to 0.010%.

3. (original) A cold-rolled steel sheet having excellent strain age hardenability comprising a composition, by mass %, comprising:

C: less than 0.01%;

Si: 0.005 to 1.0%;

Mn: 0.01 to 1.5%;

P: 0.1% or less;

S: 0.01% or less;

Al: 0.005 to 0.030%; and

N: 0.005 to 0.040%;

wherein N/Al is 0.30 or more, the amount of dissolved N is 0.0010% or more, and the balance is composed of Fe and inevitable impurities.

4. (currently amended) A cold-rolled steel sheet having excellent strain age hardenability comprising a composition, by mass %, comprising:

C: less than 0.01%;

Si: 0.005 to 1.0%;

Mn: 0.01 to 1.5%;

P: 0.1% or less;

S: 0.01% or less;

Al: 0.005 to 0.030%; and

N: 0.005 to 0.040%;

wherein N/Al is 0.30 or more, the amount of dissolved N is 0.0010% or more,

~~according to Claim 3, and wherein the composition, by mass %, preferably further~~
comprises:

B: 0.0001 to 0.0030%; and

Nb: 0.005 to 0.050%;

wherein the ranges of B and Nb satisfy the following equations (1) and (2), and the balance is substantially composed of Fe:

$$N\% \geq 0.0015 + 14/93 \cdot Nb\% + 14/27 \cdot Al\% + 14/11 \cdot B\% \quad \dots (1)$$

$$C\% \leq 0.5 \cdot (12/93) \cdot Nb\% \quad \dots (2)$$

5. A cold-rolled steel sheet having excellent strain age hardenability according to Claim 3 or 4, wherein the composition, by mass %, further comprises at least one of Cu, Ni and Mo in a total of 1.0% or less.

6. (previously amended) A cold-rolled steel sheet having excellent strain age hardenability according to Claim 1, wherein the steel sheet has a crystal grain diameter of 20 μm or less.

7. (previously amended) A cold-rolled steel sheet having excellent strain age hardenability according to Claim 1, wherein strength after forming is increased by 60 MPa or more by heat treatment in a low temperature region of 120 to 200°C.

8. (previously amended) An electro-galvanized, hot-dip galvanized or alloyed hot-dip galvanized steel sheet having excellent strain age hardenability comprising a coated layer formed on the surface of a cold-rolled steel sheet according to Claim 1 by electro-galvanization, hot-dip galvanization, or alloying hot-dip galvanization.

Claims 9-12 (canceled)

13. (original) A cold-rolled deep drawing steel sheet having excellent strain age hardenability comprising a composition, by mass %, comprising:

C: 0.01% or less;

Si: 1.0% or less;

Mn: 0.01 to 1.5%;

P: 0.1% or less;
S: 0.01% or less;
Al: 0.005 to 0.020%; and
N: 0.0050 to 0.040%;

wherein N/Al is 0.30 or more, the amount of dissolved N is 0.0010% or more, the balance is composed of Fe and inevitable impurities, and Ts x r value is 750 MPa or more.

14. (original) A cold-rolled deep drawing steel sheet having excellent strain age hardenability according to Claim 13, wherein the composition, by mass %, further comprises:

B: 0.0001 to 0.0030%; and
Nb: 0.005 to 0.050%;

wherein the balance is composed of Fe and inevitable impurities, TS x r value is 750 MPa or more, and the ranges of B and Nb satisfy the following equations (1) and (2),:

$$N\% \geq 0.0015 + 14/93 \cdot Nb\% + 14/27 \cdot Al\% + 14/11 \cdot B\% \quad \dots (1)$$

$$C\% \leq 0.5 \cdot (12/93) \cdot Nb\% \quad \dots (2)$$

15. (original) A cold-rolled deep drawing steel sheet having excellent strain age hardenability according to Claim 13, wherein the composition, by mass %, further comprises at least one of the following:

B: 0.0001 to 0.0030%;
Nb: 0.005 to 0.050%;
Ti: 0.005 to 0.070%; and
V: 0.005 to 0.10%;

wherein $N/(Al+Nb+Ti+V+B)$ is 0.30 or more, the amount of dissolved N is 0.0010% or more, the balance is composed of Fe and inevitable impurities, and TS x r value is 750 MPa or more.

16. (canceled)

17. (original) A high-tensile-strength cold-rolled steel sheet having excellent moldability, strain age hardenability and natural aging resistance comprising a composition, by mass %, comprising:

C: 0.0015 to 0.025%;

Si: 1.0% or less;

Mn: 2.0% or less;

P: 0.1% or less;

S: 0.02% or less;

Al: 0.02% or less;

N: 0.0050 to 0.0250%; and

one or both of the following:

B: 0.0001 to 0.0050%; and

Nb: 0.002 to 0.050%;

wherein N/Al is 0.30 or more, the amount of dissolved N is 0.0010% or more, the balance is composed of Fe and inevitable impurities, the structure is composed of an acicular ferrite phase at an area ratio of 5% or more and a ferrite phase having an average crystal grain diameter of 20 μm or less, and the r value is 1.2 or more.

18. (original) A cold-rolled steel sheet according to Claim 17, wherein the composition further comprises at least one of the following groups a to c:

Group a: at least one of Cu, Ni, Cr and Mo in a total of 1.0% or less;

Group b: one or both of Ti and V in a total of 0.1% or less; and

Group c: one or both of Ca and REM in a total of 0.0010 to 0.010%.

19. (canceled)

20. (canceled)

21. (original) A high-tensile-strength cold-rolled steel sheet having a high r value and excellent strain age hardenability and natural aging resistance comprising a composition, by mass %, comprising:

C: 0.025 to 0.15%;

Si: 1.0% or less;

Mn: 2.0% or less;

P: 0.08% or less;

S: 0.02% or less;

Al: 0.02% or less; and

N: 0.0050 to 0.0250%;

wherein N/Al is 0.30 or more, the amount of dissolved N is 0.0010% or more, the balance is composed of Fe and inevitable impurities, the structure is composed of a ferrite phase having an average crystal grain diameter of 10 μm or less at an area ratio of 80% or more and a martensite phase as a second phase at an area ratio of 2% or more, and the r value, is 1.2 or more.

22. (original) A high-tensile-strength cold-rolled steel sheet according to Claim 21, wherein the composition further comprises at least one of the following groups d to g:

Group d: at least one of Cu, Ni, Cr and Mo in a total of 1.0% or less;

Group e: at least one of Nb, Ti and V in a total of 0.1% or less;

Group f: 0.0030% or less of B; and

Group g: one or both of Ca and REM in a total of 0.0010 to 0.010%.

Claims 23-25 (canceled)